IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

BOOKER et al

Serial No. 10/647,106

Filed: August 25, 2003

Title: GENERATING SOFTWARE TEST INFORMATION

Atty Dkt. SCS-550-462

C#   M#

TC/A.U.   2191

Examiner: A. Khatri

Date: August 6, 2007

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE/AMENDMENT/LETTER

This is a response/amendment/letter in the above-identified application and includes an attachment which is hereby incorporated by reference and the signature below serves as the signature to the attachment in the absence of any other signature thereon.

☐ **Correspondence Address Indication Form Attached.**

Fees are attached as calculated below:

Total effective claims after amendment   **42**   minus highest number previously paid for   **42**   (at least 20) =   0   x $50.00 $0.00 (1202)/$0.00 (2202) $

Independent claims after amendment   **4**   minus highest number previously paid for   **4**   (at least 3) =   0   x $200.00 $0.00 (1201)/$0.00 (2201) $

If proper multiple dependent claims now added for first time, (ignore improper); add $360.00 (1203)/$180.00 (2203) $

Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s)

    One Month Extension $120.00 (1251)/$60.00 (2251)
    Two Month Extensions $450.00 (1252)/$225.00 (2252)
    Three Month Extensions $1020.00 (1253/$510.00 (2253)
    Four Month Extensions $1590.00 (1254/$795.00 (2254)
    Five Month Extensions $2160.00 (1255/$1080.00 (2255) $ 120.00

Terminal disclaimer enclosed, add $130.00 (1814)/ $65.00 (2814) $

☐ Applicant claims "small entity" status.   ☐ Statement filed herewith

Rule 56 Information Disclosure Statement Filing Fee $180.00 (1806) $ 0.00

Assignment Recording Fee $40.00 (8021) $ 0.00

Other: $ 0.00

          TOTAL FEE $ **120.00**

☐ **CREDIT CARD PAYMENT FORM ATTACHED.**

The Commissioner is hereby authorized to charge any <u>deficiency</u>, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140. A <u>duplicate</u> copy of this sheet is attached.

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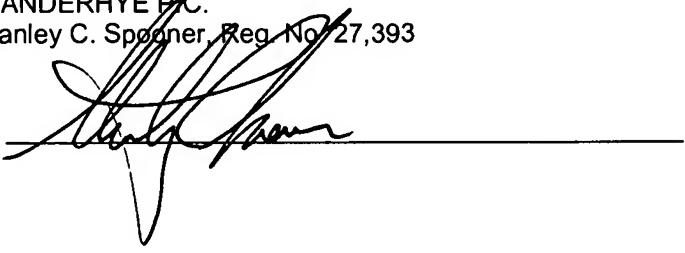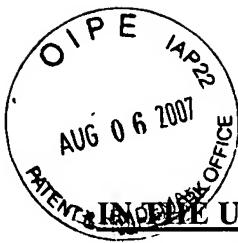
In re Patent Application of

BOOKER et al   Atty. Ref.: 550-462; Confirmation No. 9839

Appl. No. 10/647,106   TC/A.U. 2191

Filed: August 25, 2003   Examiner: A. Khatri

For: GENERATING SOFTWARE TEST INFORMATION

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August 6, 2007

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REQUEST FOR RECONSIDERATION

This Request for Reconsideration is responsive to the Official Action mailed April 6,

2007 (Paper No. 20070322), the date of response to which has been extended one month up to

and including August 6, 2007, in view of the attached one-month extension of time petition and

petition fee.

Claims 1-42 stand rejected in the outstanding Official Action. No claims have been

amended and therefore claims 1-42 remain in this application.

Telephone Interview with SPE Wei Zhen August 2, 2007

The undersigned attempted to reach Examiner Anil Khatri on August 1, 2007, but through voice mail was informed that he was out of the office until August 13. Applicants' undersigned representative left a message with the Examiner's Supervisor, SPE Wei Zhen, and SPE Zhen returned the call on August 2, 2007. The telephone interview is very much appreciated.

The telephone interview request was prompted by Applicants' realization that the rejection of claims 1-42 under 35 USC §101 on page 2 of the Official Action was virtually identical to the rejection under 35 USC §101 in the previous Official Action, notwithstanding Applicants' detailed response set out between pages 13 and 16 in the Amendment filed February 1, 2007. As noted in the remarks portion of the previously filed Amendment, Applicants demonstrated the clear error of the rejection under 35 USC §101.

In discussions with SPE Zhen, it was agreed that method claim 1 recited hardware, i.e., the claimed "target processor," and that this hardware interacted with the instructions to produce "software test information" as an output. It was agreed that claim 1 meets Patent Office guidelines for statutory subject matter and that there was no basis for any further rejection of claim 1 under 35 USC §101.

During the telephone interview, it was also agreed that claim 14, the apparatus claim for generating software test information, positively recited structure, i.e., "a target processor" which interrelated the "instruction generation logic" and the "determination logic" as set out in the claim. Again, it was agreed that independent claim 14 met the Patent Office guidelines for statutory subject matter as it currently exists.

Also, independent claims 27 and 35 directed to a "computer program product" were also discussed and both were considered to be statutory subject matter in that they both recite that the computer program product comprises "a computer readable storage medium" which is a positive recitation of structure, thereby meeting Patent Office guidelines for statutory subject matter.

Finally, the Supervisory Examiner's agreement that the referencing of the telephone interview in any response filed would obviate any further rejection under 35 USC §101 is very much appreciated.

In view of the telephone interview discussed above, the rejection of claims 1-42 under 35 USC §101 is again respectfully traversed for the reasons set out in the Amendment filed February 1, 2007. In view of the agreement reached with the Examiner's Supervisor, as noted in the Interview Summary above, there is clearly no further basis for rejection of independent claims 1, 14, 27 and 35 or claims dependent thereon and therefore any further rejection under 35 USC §101 is respectfully traversed.

Claims 1-42 also stand rejected under 35 USC §102 as being anticipated by Cmelik (U.S. Patent 6,031,992). The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that "[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim."

Independent claim 1 requires in subsection "a)" that "the corresponding generated instruction being a **predetermined generated instruction** having a corresponding condition code" (emphasis added). This same limitation is also present in independent apparatus claim 14 and in independent computer program product claim 35. Independent claim 1 also specifies that

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during step b), if a condition is satisfied, the step of "replacing said predetermined generated

instruction with said corresponding instruction from said sequence of instructions so as to cause

said corresponding instruction to be executed." This limitation is also present in independent

apparatus claim 14 and in independent computer program product claim 35.

Accordingly, to satisfy the Patent Office burden of proving anticipation of claims 1-42,

the Examiner must show that the above limitations are clearly evident in the Cmelik patent. The

Examiner has failed to meet this burden of establishing that Cmelik teaches the claimed subject

matter and therefore the rejection of claims 1-42 under 35 USC §102 is respectfully traversed.

Specifically, the Examiner cites on page 3 of the Office Action that the Cmelik reference,

at column 4, lines 57-67, allegedly teaches Applicants' claimed "generating" step (set out in

claims 1, 14 and 27). However, the Examiner appears to misapprehend that which is taught by

the Cmelik reference. The cited portion of Cmelik merely discloses that an emulation program is

used to change instructions of a target application program to instructions of a primitive host

system ("consequently, the emulation program, which changes the instructions of the target

application program to primitive host instructions which the host operating system is capable of

utilizing, ..." (Cmelik, column 4, lines 65-67).

The portion of Cmelik cited by the Examiner has nothing to do with target program

instructions having a condition code result in production of predetermined primitive host

instructions having corresponding condition codes. Again, the language of Applicants'

independent claim 1 specifies "generating . . . a corresponding sequence of generated

instructions, . . . the corresponding generated instruction being a predetermined generated

instruction having a corresponding condition code; . . . ." There is simply no disclosure in

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Cmelik of any "generating" step which generates a corresponding sequence of generated

instructions where the corresponding generated instruction is a "predetermined generated

instruction having a corresponding condition code." Cmelik merely "changes the instructions of

the target application program to primitive host instructions which the host operating system is

capable of utilizing" (Cmelik, column 4, lines 65-67).

In the text of the Official Action which allegedly supports the Examiner's conclusion of

disclosure in Cmelik, even the Examiner's comments evidence the speculation required to

conclude that the disclosure actually exists in Cmelik. The Examiner speculates "consequently,

the emulation program . . . **must somehow** link the operations designed to operate hardware

devices in the target computer to operations which hardware devices of the host system are

capable of implementing" (emphasis added). The Examiner does not indicate that Cmelik

teaches any linking, but just that Cmelik purportedly teaches that this must "somehow" occur.

Additionally, the Examiner states "**often** this requires the emulator software to create

virtual devices . . ." (emphasis added). There is no allegation that this is done or disclosed in the

Cmelik reference, nor is there any indication that this is what is required by Applicants' claims.

Finally, the Examiner states "**sometimes** the emulator is required to create links . . ."

(emphasis added) but again fails to even allege that there is any teaching of this feature in the

Cmelik reference.

Apart from the Examiner's speculation, there is simply no disclosure in the Cmelik

reference of the features set out in claims 1, 14 or 27. Accordingly, claims 1, 14 and 27 cannot

be anticipated by the Cmelik reference.

The Examiner also fails to indicate how or where the Cmelik reference teaches the subject matter of Applicants' claim 1, c), i.e., if a condition code is satisfied, the step of "replacing said predetermined generated instruction with said corresponding instruction from said sequence of instructions so as to cause said corresponding instruction to be executed." This limitation is also present in independent apparatus claim 14 and in computer program product claim 35, b). As will be seen, because this feature is missing from the Cmelik reference, these claims cannot be anticipated by Cmelik.

Specifically, the Examiner generally cites column 11, line 54 to column 12, line 30 of Cmelik as being somehow relevant. The Examiner's reference to the steps of claim 1 step c) of "determining" and "replacing" is in the paragraph beginning towards the bottom of page 4 and continuing to page 5 of the Official Action. The Examiner references Cmelik at column 11, lines 54 to 67, but it is noted that the Examiner has erroneously placed quotation marks before the phrase "the code morphing software" at line 2 on page 5, because that quoted language does not in fact exist in the Cmelik patent.

The Examiner's interpretation of what is disclosed in the Cmelik reference is similarly lacking in any disclosure of the claimed step of "determining" and, if so, "replacing." The Examiner fails to identify any portion of Cmelik which he interprets to teach the claimed subject matter.

Rather than meet his burden of establishing how or where Cmelik teaches the claimed subject matter, the Examiner provides a paragraph which appears to be the Examiner's understanding of how translation buffers operate. In fact, the Examiner is believed to misunderstand the Cmelik reference, which merely discloses that an enhanced hardware

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processing portion (Cmelik identifies this as a "morph host") is used together with emulating

software (or "code morphing software") to test target application software. The code morphing

software is combined with the morph host so that instructions of the target system are translated

into instructions of the host system and stored in a translation buffer.

As stated in Cmelik, column 12, lines 18-27, the use of the translation buffer "allows

instructions to be recalled without re-running the lengthy process or determining which primitive

instructions are required to implement each target instruction . . . ." Clearly, this discussion in

Cmelik discloses storing in a translation buffer instructions that have **already been translated**

(from the target system instructions) to host system instructions. This has nothing to do with,

and certainly does not suggest, the subject matter of claim 1, step c), or the similar language in

claims 14 and 35.

There is no disclosure in Cmelik of using a "predetermined generated instruction" to

determine with reference to status information "whether the condition code of said

predetermined generated instruction is satisfied" (as required by claim 1, c)) and "if so, replacing

said predetermined generated instruction with said corresponding instruction from said sequence

of instructions . . . ."

In point of fact, Cmelik actually teaches away from Applicants' claimed method steps

and apparatus by teaching that target instructions are replaced with instructions from some **other**

instruction set (in Cmelik's case, the "host instructions") and this results in a sequence of

instructions that can reproduce the intended behavior of a program. Thus, Cmelik actually would

lead one of ordinary skill in the art away from Applicants' claimed combination of elements and

method steps. Clearly, Cmelik contains no disclosure which would anticipate the subject matter

of independent claims 1, 14 and 35 and thus any further rejection of these independent claims is respectfully traversed.

In summary, it has clearly been pointed out above that the Cmelik reference fails to teach or suggest two method steps set out in Applicants' independent claims 1 and 14 and structural interrelationships set out in those claims. These two missing limitations have been split into two independent computer program product claims 27 with respect to the "generating" step of claim 1, and computer program product claim 35 with respect to the "determining" and "replacing" step of claim 1, c). Because all claims depend from one of claims 1, 14, 27 and 35, there is simply no basis for allegation that claims 1-42 are anticipated by the Cmelik reference and any further rejection thereunder is respectfully traversed.

Even beyond the Examiner's failure to identify how or where Cmelik teaches the specifically recited steps and structures of Applicant's claimed invention, Cmelik is not directed to solve the problems of Applicants' claimed invention. The present invention is directed to the problem of more efficiently performing software testing to obtain code-coverage or code-profiling information. It seeks to ameliorate the problem of inefficiencies associated with the requirement to use a handler-routine to refer back to an original instruction in order to determine whether a condition code associated with the program instruction is satisfied.

The presently claimed invention addresses this problem by producing corresponding condition codes for each predetermined generated instruction (corresponding to one of a sequence of original instructions). The provision of the condition code associated with the generated instruction reduces the time taken to determine whether that condition code is satisfied by avoiding the requirement to invoke a software-handler routine that would otherwise be

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required to perform an additional step of referring to the original instruction. The benefits of

Applicants' invention are more fully disclosed and discussed on page 8, lines 15-31 of the

present application. Cmelik certainly does not render the pending claims obvious and any future

rejection under 35 USC §103 is respectfully traversed.

Having responded to all objections and rejections set forth in the outstanding Official

Action, it is submitted that claims 1-42 are in condition for allowance and notice to that effect is

respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or

personal interview will facilitate allowance of one or more of the above claims, he is respectfully

requested to contact Applicants' undersigned representative.

Respectfully submitted,

NIXON & VANDERHYE P.C.
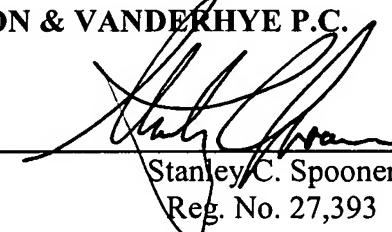
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